



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 4425 Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

(G*) The Light only Liquid Xenon (LoLX) experiment Phase 2 study

Monday 27 May 2024 15:00 (15 minutes)

The Light-only Liquid Xenon (LoLX) experiment at McGill University, in collaboration with TRIUMF, examines liquid xenon (LXe) for its potential in detecting rare physical events using Silicon photomultipliers (SiPMs). This research seeks to evaluate the long-term stability of Vacuum Ultraviolet (VUV)-sensitive SiPMs in LXe, understand LXe's optical properties, and develop new methods to separate Cherenkov and scintillation light. Outcomes will set benchmarks for SiPMs in LXe environments and enhance particle identification, aiding future rare event search experiment, such as nEXO, in achieving higher sensitivity.

LoLX2 is a 4 cm cube composed of two types of SiPMs, Hamamatsu VUV4 and FBK HD3, as well as a VUV-sensitive photomultiplier tube (PMT). In this phase of the study, we compare the performance of these two types of SiPMs to the PMT. The initial data acquisition is currently under analysis and will be discussed in this presentation.

Keyword-1

LoLX

Keyword-2

Silicon photomultipliers

Keyword-3

Neutrinoless double-beta decay

Author: LI, Xiang (TRIUMF, Simon Fraser University)

Presenter: LI, Xiang (TRIUMF, Simon Fraser University)

Session Classification: (PPD) M2-1 Neutrinos | Neutrinos (PPD)

Track Classification: Technical Sessions / Sessions techniques: Particle Physics / Physique des particules (PPD)